

What is claimed is:

1. A cellulosic product comprising cellulosic fibers and precipitated calcium carbonate prepared in-situ during papermaking deposited on the cellulosic fibers,
5 wherein the precipitated calcium carbonate is present in a variety of sizes, shapes and morphologies, and is present in the cellulosic product on all physical features of the cellulosic fibers, and wherein at least a portion of the precipitated calcium carbonate is present with the fiber based on interaction with one or more chemicals used in papermaking.
- 10 2. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is present in a non-uniform manner.
- 15 3. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is present in a manner selected from the group consisting of single crystals, agglomerates of crystals, combined agglomerates of crystals, amorphous particles, and combinations thereof.
- 20 4. The cellulosic product of claim 1 wherein a zeta potential during papermaking of said cellulosic product ranges from -5 to about +5.
5. The cellulosic product of claim 4 wherein the zeta potential during papermaking of said cellulosic product ranges from -2 to about +2.
- 25 6. The cellulosic product of claim 1 wherein the freeness of the fibers ranges from about 300 csf to about 900 csf.
7. The cellulosic product of claim 6 wherein the freeness of the fibers ranges from about 400 csf to about 500 csf.
- 30 8. The cellulosic product of claim 1 wherein the crystals have a size ranging from 0.1 micrometer to about 10 micrometers.

09981029.101701

9. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is present at a weight percent of least 40 percent.

10. The cellulosic product of claim 1 wherein the fibers are derived from
5 wood, non-wood, or recycled materials.

11. The cellulosic product of claim 1 wherein during papermaking, the fiber comprises an aqueous suspension having a consistency ranging from about 0.05 percent to about 50 percent.

10

12. The cellulosic product of claim 1 wherein during papermaking the fiber comprises an aqueous suspension having a consistency ranging from about 5 percent to about 10 percent.

15

13. A building product comprising the cellulosic product of claim 1.

14. A paper product comprising the cellulosic product of claim 1.

15. The cellulosic product of claim 1 wherein the fiber is bleached fiber.

20

16. The cellulosic product of claim 1 wherein the fiber is derived from a kraft process.

17. The cellulosic product of claim 1 wherein the precipitated calcium
25 carbonate has morphology selected from the group consisting of amorphous, crystalline, powder, and mixtures thereof.

18. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is crystalline and has a crystal morphology selected for the group consisting
30 of calcite, aragonite, vaterite, rhombohedral, sclenohedral, prismatic, and mixtures thereof.

19. The cellulosic product of claim 1 wherein the fiber has native calcium present in an amount ranging from about 1 ppb to about 1 ppm.

09981029 101701

20. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is derived from reaction of non-precipitated calcium carbonate with carbon dioxide.

5

21. The cellulosic product of claim 1 wherein the precipitated calcium carbonate is derived from reaction of a salt of a bicarbonate with carbon dioxide.

22. The cellulosic product of claim 1 wherein the one or more chemicals used in papermaking are selected from the group consisting of wet strength additives, retention aids, drainage aids, flocculants, dispersants, chelants, scale inhibitors, corrosion inhibitors, and slimicides.

23. The cellulosic product of claim 1 wherein at least some of the fibers comprise cells selected from the group consisting of tracheid cells, ray cells, ray parenchyma cells, epithelial parenchyma cells, vessel elements, longitudinal parenchyma cells, and combinations thereof.

23. The cellulosic product of claim 23 wherein at least some of the cells have pits, and at least some of the pits have PCC deposited therein.

20

25. The product of claim 23 wherein a majority of the cells have pits, and substantially all of the pits having PCC therein.

25

0981029 101701